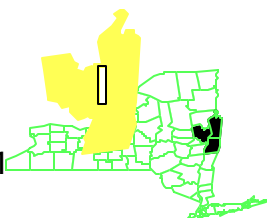


HUDSON RIVER PCBs

NEW YORK

EPA ID# NYD980763841



EPA REGION 2 CONGRESSIONAL DIST. 22 and Others

Between Hudson Falls and
the Battery in New York City

Site Description

The Hudson River PCBs site includes the approximately 200-mile stretch of the Hudson River from Hudson Falls to the Battery in New York City. The Upper Hudson River, an approximately 40-mile reach of the river from Hudson Falls to Troy, in Washington, Saratoga and Rensselaer Counties, is the reach that has been selected for remediation. The General Electric Company discharged between 209,000 and 1.3 million pounds of polychlorinated biphenyls (PCBs) into the river from two capacitor manufacturing plants located in Hudson Falls and Fort Edward. The PCBs from these discharges contaminated the sediments of the Upper Hudson River. Also included in the site are five remnant deposits, which are river sediments that were exposed when the level of the river was lowered due to the removal of the Fort Edward Dam, in 1973.

In 1976, because of the concern over the bioaccumulation of PCBs in fish and other aquatic organisms and their subsequent consumption by people, the State of New York banned fishing in the Upper Hudson River and commercial fishing of striped bass, and several other species, in the Lower Hudson. In August 1995, the Upper Hudson was re-opened to fishing, but only on a catch and release basis.

Albany, the largest city in the basin, has a population of more than 100,000 people; the Town of Fort Edward has a population of 6,480. Land uses in the Hudson River Basin include agriculture, service, and manufacturing, in addition to residential. The Hudson River is an important source of hydroelectric power, public water supplies, transportation, and recreation. The Cities of Waterford, Poughkeepsie, and Rhinebeck, as well as the Highland and Port Ewen Water Districts obtain their water supplies directly from the Hudson River. In addition, a water intake near Chelsea, which is north of Beacon, may be used to supplement New York City's water supply during periods of drought. The towns of Waterford and Halfmoon obtain water from the Upper Hudson River; these are currently the only municipal water supply intakes below Fort Edward and above the Troy Dam.

The Hudson River has been designated an American Heritage River because of its important role in American history and culture.

Site Responsibility: This site is being addressed through a combination of Federal and potential responsible party actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Fish in the Hudson River have been contaminated with PCBs, and eating contaminated fish has been found to present an unacceptable risk (i.e., could affect the health of individuals.)



Other exposure pathways to PCBs in the river do not generally exceed acceptable risk levels, such as drinking water, volatilization, or recreational exposure to sediment or water. Concerns related to possible exposure of residents and ecological receptors to PCB contamination in the floodplains will be further evaluated concurrent with the design phase of this project.



Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases directed at cleanup of the Upper Hudson River.

Response Action Status



Immediate Actions: In 1977 and 1978, an estimated 180,000 cubic yards of contaminated sediments were dredged from the east channel at Fort Edward to clear the navigational channel. These dredged sediments, along with approximately 14,000 cubic yards of highly contaminated sediments from one of the remnant areas, were placed in a clay-lined containment cell. A 40-mile stretch of the Upper Hudson River is open only to catch and release fishing, and the Lower Hudson River has a commercial fishing ban and consumption advisories on striped bass and several other species.

In 1991, investigations at Bakers Falls, in the vicinity of the General Electric Hudson Falls facility (a separate New York State listed hazardous waste site) showed elevated PCB concentrations in the water column. General Electric signed a consent agreement with the State of New York to further investigate this area and to conduct interim remedial measures to prevent PCB contamination from this source from entering the river. Numerous measures have been implemented, including: preventing flow of river water through seep areas in an abandoned mill building, installation of seep collection systems, removal of contaminated sediment from the mill building, pressure grouting of bedrock in areas where seeps were observed in the riverbed, and oil phase PCB collection wells. Further investigations have determined that additional actions may be necessary. Information collected for the Hudson Falls Plant site investigation has been incorporated as appropriate into the EPA's decision for addressing the contaminated river

sediments.



Remnant Deposits: General Electric, under a Consent Decree with EPA, conducted an interim cleanup of the remnant deposits, selected in the 1984 Record of Decision for the site.

The remedy chosen for this portion of the site was in-place containment of shoreline remnant deposits. This includes covering the affected areas with a geosynthetic clay liner and a 2-foot layer of soil, followed by grading and revegetating to minimize erosion. The river banks were stabilized with rock to prevent scouring. Cap construction and the erection of gates to limit site access were completed in 1991.



River Sediments: In the 1984 Record of Decision for the site, EPA selected an interim “no-action” decision for the contaminated river sediments. After conducting a

comprehensive reassessment of the earlier decision, EPA decided in February 2002 that it is appropriate to remediate the Upper Hudson River. The selected remedy includes the dredging of approximately 2.65 million cubic yards of PCB-contaminated sediments from the Upper Hudson River, which is estimated to contain 70,000 kg (about 150,000 lbs) of total PCBs (approximately 65% of the total PCB mass present within the Upper Hudson River). The selected remedy assumes a separate source control action near the GE Hudson Falls plant. The major components of the selected remedy include:

- Removal of sediments based primarily on a mass per unit area (MPA) of 3 g/m² Tri+ PCBs or greater (approximately 1.56 million cubic yards of sediments) from River Section 1;
- Removal of sediments based primarily on an MPA of 10 g/m² Tri+ PCBs or greater (approximately 0.58 million cubic yards of sediments) from River Section 2;
- Removal of selected sediments with high concentrations of PCBs and high erosional potential (NYSDEC *Hot Spots* 36, 37, and the southern portion of 39) (approximately 0.51 million cubic yards) from River Section 3;
- Dredging of the navigation channel, as necessary, to implement the remedy and to avoid hindering canal traffic during implementation. Approximately 341,000 cubic yards of sediments will be removed from the navigation channel (included in volume estimates in the first three components, above);
- Removal of all PCB-contaminated sediments within areas targeted for remediation, with an anticipated residual of approximately 1 mg/kg Tri+ PCBs (prior to backfilling);
- Performance standards for air quality and noise;
- Development of other performance standards (including but not necessarily limited to resuspension rates during dredging, production rates during dredging, and residuals after dredging) during the design with input from the public and in consultation with the state and federal natural resource trustees. These performance standards will be enforceable, and based on objective environmental and scientific criteria. The standards will promote accountability and ensure that the cleanup meets the human health and environmental protection objectives of the ROD.
- Independent external peer review of the dredging resuspension, PCB residuals, and production rate performance standards and the attendant monitoring program, as well as the report prepared at the end of the first phase of dredging that will evaluate the dredging with respect to these performance standards;
- Performance of the dredging in two phases whereby remedial dredging will occur at a reduced rate during the first year of dredging. This will allow comparison of operations with pre-established performance standards and evaluation of necessary adjustments to dredging operations in the succeeding phase or to the standards. Beginning in phase 1 and continuing

throughout the life of the project, EPA will conduct an extensive monitoring program. The data EPA gathers, as well as the Agency's ongoing evaluation of the work with respect to the performance standards, will be made available to the public in a timely manner and will be used to evaluate the project to determine whether it is achieving its human health and environmental protection objectives;

- Backfill of dredged areas with approximately one foot of clean material to isolate residual PCB contamination and to expedite habitat recovery, where appropriate;
- Use of rail and/or barge for transportation of clean backfill materials within the Upper Hudson River area;
- Monitored Natural Attenuation (MNA) of PCB contamination that remains in the river after dredging;
- Use of environmental dredging techniques to minimize and control resuspension of sediments during dredging;
- Transport of dredged sediments via barge or pipeline to sediment processing/transfer facilities for dewatering and, as needed, stabilization;
- Rail and/or barge transport of dewatered, stabilized sediments to an appropriate licensed off-site landfill(s) for disposal. If a beneficial use of some portion of the dredged material is arranged, then an appropriate transportation method will be determined (rail, truck, or barge);
- Monitoring of fish, water and sediment to determine when Remediation Goals are reached, and also monitoring the restoration of aquatic vegetation; and,
- Implementation (or modification) of appropriate institutional controls such as fish consumption advisories and fishing restrictions by the responsible authorities, until relevant Remediation Goals are met.

The targeting of *Hot Spots* 36, 37 and the southern portion of 39, was based on available data showing that those areas have high PCB concentrations, and potential for loss to the water column or uptake by biota. Additional sampling has been conducted during remedial design that will enable EPA to determine whether other areas in River Section 3 have these characteristics and therefore need to be remediated as part of the selected remedy.

Remedial dredging will be conducted in two phases. The first phase (Phase 1) will be the first construction season of remedial dredging. The dredging during that year will be implemented initially at less than full scale operation. It will include an extensive monitoring program of all operations. An independent external peer review of the dredging resuspension, PCB residuals, and production rate performance standards is currently being conducted. The final performance standards are expected to be issued in spring of 2004 subsequent to addressing the peer review comments. Monitoring data collected during the dredging will be compared to performance standards. Phase 2 will be the remainder of the dredging operation, which will be conducted at full-scale. During the full-scale remedial dredging, EPA will continue to monitor, evaluate performance data and make necessary adjustments.

An extensive sampling program for the contaminated sediments was initiated in the fall of 2002 and is substantially complete. More than 30,000 samples have been collected from approximately 6000 locations. The results of this sampling effort will be utilized to delineate areas for dredging. The remedial design is being performed by GE and is at the 35% stage.

EPA retained several components of the remedial design program, specifically: the development of Engineering Performance Standard (EPS) described above; the development of Quality of Life Performance Standards that will address impacts on the community from air, odor, lighting, noise and

navigation during the remedial action; the siting of sediment processing/transfer facilities; and the community outreach program. As noted above, the EPS are currently undergoing peer review. The Quality of Life standards were released for public review in December 2002; these standards will be finalized in the spring of 2004 following assessment of public comment on the draft standards. The facility siting process is underway and identification of facility locations for the Phase 1 and Phase 2 dredging is expected in spring 2004 and summer 2004, respectively. A community relations plan has been developed and is currently being implemented.



Rogers Island Removal Assessment: Information generated by New York State in the early 1990's along with development activities on the southern portion of the island raised concerns regarding potential exposure to PCBs by current residents and potential future users of Rogers Island. EPA decided it was necessary to remove PCB and lead contaminated soils from properties on the northern (residential) area of the island. Removal of the contaminated soil was completed in December 1999.

Enforcement Status



General Electric agreed to implement the in-place containment remedy for the remnant deposits and to reimburse EPA for any costs incurred for that portion of the site remedy.

EPA decided not to allow GE to conduct the Reassessment, instead EPA conducted the study itself.

General Electric was offered the opportunity to conduct the Remedial Design and Remedial Action selected in the 2002 Record of Decision. In July 2002 EPA and GE entered into an Administrative Order on Consent (AOC) for an extensive sediment sampling program. The agreement included a \$5M payment towards past costs and \$2.6M for EPA oversight of the sampling program. This program is close to completion.

In May 2003 EPA and GE reached a draft agreement for implementation of the remedial design of the dredging remedy; the agreement included work plans for implementing the design. In August 2003, after accepting public comment on these work plans, EPA finalized the agreement with GE. The agreement includes a \$15M payment from GE towards past costs and a provision for GE to reimburse up to \$13M in costs associated with EPA's performance of design work for which it has lead responsibility, as well as costs that will be incurred in EPA's oversight of GE's design work.

Cleanup Progress



(Threat Mitigated by Physical Clean-up Work)

Cap construction was completed at the remnant deposits area of the Hudson River PCBs site in 1991, which prevents exposure to contaminants by direct contact or inhalation. In addition, the capping along with bank stabilization should minimize the amount of PCBs entering the river from the remnant deposits.

The removal of PCB and lead contaminated soils from the northern end of Roger's Island eliminated the potential exposure to PCBs by current residents and potential future users of Rogers Island.

After the implementation of interim remedial measures at the Hudson Falls Plant site, PCB concentrations

in the water-column have decreased to levels which are similar or below those measured before the 1991 peak PCB levels. Additional studies were conducted to evaluate if additional control measures can further reduce contributions to the water column from the Hudson Falls Plant site. In 2003 New York State issued a Proposed Remedial Action Plan intended to remedy the potential impacts from the contaminated soils and contaminated groundwater. New York State is currently considering public comments on this Proposed Remedial Action Plan prior to the issuance of a Record of Decision (expected in 2004).

New York State issued a Record of Decision on January 28, 2000 for the Ft. Edward plant site that addressed PCB-contaminated soils and sediments at the plant outfall. Remediation of the outfall area was substantially completed in the fall of 2003.

Site Repositories



Adriance Memorial Library, 93 Market Street, Poughkeepsie, NY 12601

Crandell Library, City Park, Glens Falls, NY 12801

New York State Library, CEC Empire State Plaza, Albany, NY 12230

Saratoga County EMC, 50 W. High Street, Ballston Spa, NY 12020

Edgewater Public Library, 49 Hudson Street, Edgewater, NJ 07020

NYSDEC, Div. of Hazardous Waste Remediation, 50 Wolf Road, Albany, NY 12233

U.S. Environmental Protection Agency Records Center, 290 Broadway, 18th Floor, NY, NY 10007

USEPA, Hudson River Field Office, 421 Lower Main Street, Fort Edward, NY 12839